**Sustainable Growth Working Group Matrix**

Highlighted cells indicate U.S. Action

| | Agenda Item | US Member | US ABAC position/action | USG Position if known or applicable | Other economy positions |
|---|---|---|---|---|---|
| 3. | Food Security | | | | |
| | Preparations for PPFS | • Kevin Thieneman or Alex Parle | • PPFS is a litmus test for public-private partnerships. ABAC should play a leading role to ensure that the PPFS is a success. Want to have a strong role in the leadership of the PPFS | | • Dr. Savaraj Sachchamarga, of Thailand, will lead this issue and is also a co-chair of SGWG. |
| | Post-harvest loss | • Kevin Thieneman or Alex Parle | • ABAC USA should monitor | | • Dr. Savaraj Sachchamarga, of Thailand, will lead this issue and is also a co-chair of SGWG. |
| | Letter to Food Ministers | • Kevin Thieneman or Alex Parle | • ABAC USA should monitor | | • |
| 4. | Energy Security | | | | |
| | ASEAN Power Grid | • Kevin Thieneman or Alex Parle | • ABAC USA should monitor | • | • ABAC Canada will champion energy security in 2012. |
| | Energy Ministers Meeting/Letter to Ministers | • Kevin Thieneman or Alex Parle | • ABAC USA should monitor | • | • |
| 5. | Tech Transfer and Cutting Edge Technology Investment | | | | |
| | **Update on Research Initiative on TT** | • Kevin Thieneman or Alex Parle | • ABAC USA feels that the core issue ABAC should try to resolve is the technology gap between APEC economies and believe that APEC can be effectively leveraged to make progress in promoting the diffusion of technology throughout the region in a manner that is consistent with its mission and purpose. | | |
| | **Technology Transfer Partnership** | • Kevin Thieneman or Alex Parle | | USG is not supportive of this proposal | |

| | | | | | |
|---|---|---|---|---|---|
| | | | • The US has some concerns about the PPTT proposal. Since the PPTT essentially focuses on arranging licensing agreements (which is a substitute for FDI), our concern is that the PPTT proposal calls for the creation of a Policy Partnership (no small task, as we all know well) that will address only a narrow element of the overall technology gap/diffusion issue. This would arguably be similar to creating the Policy Partnership on Post-Harvest Loss to address the food security issue in APEC.<br><br>• ABAC USA would be interested in supporting a broader approach to addressing the technology gap among APEC economies that more effectively leveraged APEC's core agenda related to trade and investment as well as behind the border issues that promote the absorption of technology. We generally don't have a problem with the "Policy Partnership" approach, although we do think that trying to launch it this year would be difficult, particularly given the shortened APEC calendar. | | |
| 6. | Review of Draft MRT Letter | • Kevin Thieneman or Alex Parle | • ABAC USA should be aware that tech transfer issues will be discusses extensively and possibly pushed for inclusion in the letter to MRT | | |

Document: SDWG 32-016
Draft: **FIRST**
Source: SDWG Chair
Date: 8 May 2012
Meeting: Kuala Lumpur, Malaysia

**Sustainable Development Working Group**
**1045-1245, Tuesday 22nd May 2012**
**Venue: Sabah Room, Basement II, Shangri-La Hotel, Kuala Lumpur**

**Draft Agenda**

| Agenda Item No. | Issue | Lead Economy/ Speaker | Doc. No. |
|---|---|---|---|
| 1 | **Welcome, approval of agenda -2 mins** | Lead Co-Chair/Mr. Tajuddin Ali | |
| 2 | **Approval of the minutes of the last SDWG meeting -3 mins** | Lead Co-Chair/Mr. Tajuddin Ali | |
| 3 | **Food Security – 40 mins**<br>• Report on preparations for PPFS Meeting<br>• Presentation on post-harvest loss<br>• Review of Letter to Food Ministers | <br>ABAC Russia(TBC)<br>Tony Nowell/ABAC New Zealand<br>Lead Co-Chair/Mr. Tajuddin Ali | <br><br>**32-019**<br>**32-017** |
| 4 | **Energy Security – 30 mins**<br>• Presentation on ASEAN Power Grid<br>• Update on preparations for ABAC Energy Ministers Meeting, Review of Letter to Energy Ministers | <br>Malaysian Ministry of Energy, Green Tech & Water<br>ABAC Canada/ABAC Malaysia | <br><br>**32-018** |
| 5 | **Technology Transfer and Cutting Edge Technology Investment– 30 mins**<br>• Update on Research Initiative on Technology Transfer and Cutting Edge Technology Investment<br>• Technology Transfer Partnership | <br>ABAC Chinese Taipei<br>ABAC Russia(TBC) | |
| 6 | **Review of draft MRT letter**(Focus on the issues of technology transfer, food security& energy security)**– 10 mins** | Lead Co-Chair/Mr. Tajuddin Ali | |

| | | | |
|---|---|---|---|
| **7** | **Other Issues -5 mins**<br>• Other Business<br>• Closing Remarks | Lead Co-Chair/Mr. Tajuddin Ali | |

Document: SDWG 32-014
Draft: **THIRD**
Source: SDWG Chair
Date: 2 March 2012
Meeting: Hong Kong, China

**Sustainable Development Working Group Meeting**
**22 Feb 2012, Hong Kong, China**

**Minutes of the Meeting**

Mr. Frank Gaoning Ning, SDWG Chair, welcomed the delegates to the first SDWG meeting for the year. After the confirmation of the 4 Co-Chairs, SDWG Chair gave an overview of the Work Program for 2012. SDWG would be focusing on:

1) Strengthening food security by increasing food technology dissemination, developing food export/import infrastructure as well as facilitating food trade within the region;
2) Promoting Energy Efficiency & facilitating trade in EGS;
3) Fostering Technology Transfer and Cutting Edge Technology Investment.

The work program highlighted on the 2012 objectives and action plan was presented and endorsed by the members.

## 1. Food Security

***What was the issue?***

On APEC's commitment to and ensure the effective implementation of the APEC Food System as a holistic approach to ensuring food security, and using the "Strategic Framework for Food Security in APEC" as the guide, there is a need to prioritize what would be some of the key and pressing issues which ABAC should focus on for this year.

***What was discussed?***

### I. Food security Proposal

The WG Chair made a presentation on promoting technology dissemination in APEC Food Sector. He pointed out that the fundamental to the world food security issue is the imbalanced food production, consumption and distribution. Technology is the key to increase food output and ensure stable food supply. The imbalanced are resulted on one hand by nature-born differences and on the other hand by the fact that advanced technologies possessed by the developed economies while in developing countries technology is not properly used.

Based on the research of technology differences in plantation, farming, processing, storage and quality control among the different economies within the region, the WG Chair put forward a few recommendations on technology transfer and also suggested establishing a technology transfer project.

Since the sector is mainly managed by private companies, It will be difficult for them to transfer technology without immediate benefits. The WG Chair proposed to work out a plan that can be implemented and communicated to the proper organizations and authorities in stimulating technology dissemination.

ABAC New Zealand: The presentation is very interested and asked it to be circulated. As for post-harvest loss, he point out that not only technology but also foreign direct investment will be helpful.

ABAC Japan: We should pay attention to not only the imbalance in food production and consumption among countries but also within one economy. Imbalance within an economy will result in instability.

ABAC Chinese Taipei: From plantation to processing to storage, we shall share knowledge and data and information. That'll be helpful to solve issues and it will be a good start.

**II. PPFS**

ABAC USA: What is the difference between PPFS and ABAC? Relationship between PPFS and ABAC need to be further clarified.

ABAC China, the WG Chair: We should utilize whatever effective channel to communicate the idea to the right audience. The food security is a big issue that could not be solved overnight, but we need to start with smaller but specific aspects.

ABAC Papua New Guinea: ABAC's role is more a political advisor than to make it happen. Both PPFS and ABAC can play a role in ensuring a favourable result.

Mr. Aleksashenko, PPFS Chair: The result is most important and shared his thought on the role of PPFS and ABAC. PPFS was originally promoted by ABAC. ABAC's role was to identify most important issues in the region. Many of ABAC members will join PPFS as private sector representatives and therefore there's should be no conflict but cooperation, and the two organizations can be partners. ABAC is a long-term mechanism to identify problems and PPFS is to implement and solve problems.

There are two procedures for private sector to join: ABAC should nominate private sector representatives to PPFS and would select principle representatives to PPFS.

The March 1st deadline might be difficult to meet, but a 10 days or two weeks postpone should be sufficient. However, we need to do it as soon as possible. We're got support from Ministerial Meeting in Moscow. They're naming their public members as soon as possible. PPFS need to rely on private sector experience to aggregate it and help to make better policies. He encourage ABAC member to nominate members and allow a smooth start of the PPFS.

ABAC HK asked how to submit the name. ABAC Russia responded that it should be sent to ABAC Secretariat and forward to the Executive Director, while governments will send theirs to Senior Officials. WG chair asked ABAC to encourage more people to join PPFS.

***What was agreed/decided?***

The meeting agreed and endorsed the proposed work plan for food security in 2012. SDWG priority initiatives on food security for 2012 would be:

a)Promote food technology dissemination by identifying technological gap and areas of technology dissemination between member economies and working out a plan that can be implemented;

b)Work out a regional strategic framework of developing food export/import infrastructure to minimize

amount of food losses during transportation and contribute to greater affordability of food to vulnerable populations;

c)Develop a framework of harmonizing customs, sanitary and veterinary procedures to remove non-tariff obstacles to regional food market;

d) Push forward the development of a platform for information sharing( as one of 62 APEC Action Plan on Food Security, Japan has taken the action to develop a portal website for sharing information provided by economies, develop the website integrating such information as outputs of the activities, best practices, research results and statistics, and observe the activities).

2012 will be a transition year for ABAC's work on food security. We will work to (a) help the PPFS setup and (b) prepare an agenda which can be taken up in the PPFS. Action items are:

1. ABAC members need to coordinate with their officials to ensure that at least one private sector representative from their economy will participate in the PPFS.

2. SDWG will continue to lead on food security issues with a view of eventually transferring these issues to the PPFS.

## 2. Energy Security

***What was the issue?***

Framework on Energy security has been endorsed at the end of last year. The work plan for 2012 is to continue efforts in 2011.

***What was discussed?***

**I. Proposed Work Plan for Energy Security**

Ms. Isabelle Courville, Co-Chair of SDWG: Framework has been endorsed at the end of last year and we hope that in 2012 there will be an opportunity to discuss the recommendations with the Ministers of Energy. Last year, ABAC mainly focused on diversification, energy efficiency, clean technology promotion and improving energy productivity. Underlying these goals is the need for energy prices to reflect the true cost. We noted that APEC has made some progress. For example, Leaders announced that APEC will explore voluntary fuel subsidy reporting similar to the G20. On EGS, APEC economies aim to by 2015 reduce tariffs to 5% or less. On efficiency, the EWG and TWG have been instructed to work with ABAC to establish a freight transporters network. Outstanding issues for ABAC include an APEC Energy Security Framework and annual private sector dialogue with Energy ministers. Also, little was done on renewable energy last year.

Proposed workplan for 2012 a focus on renewable and EGS.

**I. The Northeast Asia Region Electrical System Ties**

ABAC Russia presented the paper on how to improve security of the supply of electric power after Fukushima nuclear incident ***(see doc. SDWG 32-006)***

The NEAREST Initiative (abbreviation for North East Asian Region Electrical System Ties) is aimed at improving power grids interconnections between national electric power systems of Eastern part of Russia,

North and North-East of China, Japan, Republic of Korea and other economies. The name was given by the Russian, Korean and Japanese consortium of research institutes in 2008 in a relevant research.

NEAREST is a circle or loop of electric power transmission lines and submarine cables within North East Asia with total capacity up to 200 GW. Existing technologies make it feasible to exchange electric power flows and compensate power generation and consumption imbalances on day & night and seasonal basis.

Due to time zones and climate difference like temperature, solar radiation or wind velocity there is a gap in peak load between different nodes of power grids. All this makes it advisable and practical to interconnect these grids. Furthermore, proposed interconnection will deliver cheaper, safer and environmentally friendlier power for all North Eastern economies at reasonable price.

A 400 km long and 500 kV with 1 GW transmission capacity interconnection that has been just constructed between East Russia and North East China can be considered as a trial project.

The world best cases - the European Super grid project, Canada – USA electric power bridge, etc. - demonstrate a global trend: integration of national power systems along with renewable power development.

ABAC Russia recommended including the NEAREST Initiative into ABAC/APEC agenda in 2012. It also invited research, business, and financial institutions of APEC economies to consider joining the NEAREST project. And finally ABAC Russia recommended the NEAREST Initiative for APEC Leaders to consider their economies participation in an international feasibility study, which can be then used for bilateral and multinational cooperation purposes.

Ms. Isabelle Courville, Co-Chair of SDWG: About connecting peak day and night, summer and winter, we have been doing this for years and will do more. About the transport line, our experience is getting people to finance it is expensive and very difficult. We should work on what it takes Ministers to think that way, for instance, to talk with Japan on how Japan can get power from other parts of the region. We need to see if regions and economies are interested in that.

Dr. Ahmad Tajuddin Ali, Lead co-chair highlighted efforts made by ASEAN to establish cooperation on the development of the common ASEAN policy on power interconnection and sharing through the realization of the ASEAN Power Grid. It was agreed that the ASEAN Power Grid is a good example that would provide a better understanding on the policy framework and cooperation needed for sharing of power within the region.

**II. Ministerial Meeting Review**

ABAC USA：Presented the NCAPEC proposal on Private Sector Interaction with Ministers at the St. Petersburg Energy Ministerial. It is to reinforce ABAC interest after the ministerial meeting in June and to ensure a strong private sector input ***(see doc. SDWG 32-010).*** A show of ABAC support for the NCAPEC proposal was requested.

***What was agreed/decided?***

The meeting agreed and endorsed the proposed work plan for energy security in 2012. SDWG priority initiatives on energy security for 2012 would be:

a) Promotion of potential vehicles to advance energy security goals, namely the development of an APEC Energy Framework and an annual meeting by Energy ministers with a private sector dialogue;
b) Recommendations to address barriers to trade and renewable energy development, namely on the building on transmission and distribution infrastructure.

As for the project proposal, the meeting agreed that the idea of exchanging between peak hours is interesting. It should be addressed on the real bottle-neck, which includes financing for building the network. it was suggested that ABAC should engage relevant economies to work on the project.

Next steps:

1. It was agreed that the SDWG's work on barriers to trade and renewable energy development in 2012 should focus mainly on the building of transmission and distribution infrastructure. ABAC Malaysia will give a presentation on ASEAN Grid project at ABAC 2

2. To advance the goal of a private sector meeting with the APEC Energy Ministers in June, and to show support for the NCAPEC proposal, the SDWG proposes a letter from the ABAC Chair to the ABAC SOM. The letter is to be approved by the Council.

## 3. Technology Transfer and Cutting-Edge Technology Investment

***What was the issue?***

It is imperative to reduce barriers to technology transfer and create a conductive environment for investment in cutting edge technologies to ensure sustainable growth.

***What was discussed?***

**I. Importance of Technology Transfer**

The Skolkovo Innovation Center of the Russian Federation made a presentation on the Importance of Technology Transfer.

Classic technology transfer model: RD-IP-Marketing-Licensing-Products/Services-Income

Current research on Russia: (research result report) They have not recognized technology shall be marketed and licensed but noted that things should be change. Their priority is to diversify economy, commercialize science and technology; retain talents and pursue global leadership in the 21st Century.

Classic technology environment: Entrepreneurs-Private Equity-Large Corporate

Current Russia's situation: There is a gap between entrepreneurs and the market. Huge difference before and after 1991.

Russia has 3 agencies: Skolkovo (SK), Russian Venture Company and Rusnano. They collaborate with each other. Five priorities: energy, space, IT, nuclear and bio-med.

Example: Skolkovo. It is a real city outside Moscow with infrastructure and facilities, 400 hectares, 10,000 residents, 25000 jobs. It will be completed in 2014.

Integrate education, R&D, start-ups, corporations and venture capital. Require IP protection, promotion and IP courts. We are assisting the Russia government to do that and promote it internationally.

One effective platform for technology transfer is the laboratory. We also need international collaboration. Some may fail but we want to give support to the most potential ones. Corporate leaders assisting tech transfer are also important.

ABAC New Zealand: It is very importance to share best practices within the region.

ABAC Brunei: Need a work plan structure for joining in the scheme. There is immediate availability to seek new partnership, so you want to talk to companies with interest in extending their IP.

ABAC Russia: We have a team with us today. We have support from universities to build R&D, they are willing to collaborate.

**II. Research Initiative on Technology Transfer and Cutting-Edge Technology Investment**

Ms. Cher Wang, ABAC Chinese Taipei,Co-Chair of SDWG: Need to look for the conditions to facilitate technology transfer from public to private sectors, from large companies to SMEs, and between economies.

Mr. Steven Lee, ABAC Chinese Taipei made a presentation on Research Initiative on Technology Transfer and Cutting Edge Technology Investment ***(See Doc. SDWG 32-009A).***

Research objective: individual and international level. Research framework for technology transfer: 1. IP sharing and licensing; 2. Platform and channel; 3 capital and commercialization. For cutting edge technology: public and private investment; REI priorities. Government policy is critical, Business contact is critical too.

Ms. Cher Wang, Co-Chair of SDWG: In response to ABAC Singapore question, participation of ABAC members is very welcome.

**III. Technology Transfer Partnership**

Mr. Vladimir Androsik, ABAC Russia made a presentation on Technology Transfer Partnership ***(See Doc. SDWG 32-002).***

The reasons for TTP are: 1) Tech stimulates economic growth and higher quality of life; 2) Creates value for both the donor and the recipient; 3) Tackles barriers to TT in APEC region: weak IP protection and expensive; 4) Ease food security issue, for example, green revolution.

TT partnership objectives: 1) TTP Structure: 1 chair, 2 co-chairs, 1 IPR advisor, 1 private sector rep. Up to 2 public sector reps, up to 3 private sector reps, up to 5 reps from institutions and centers.

TTP should have its own secretariat.

Proposed roadmap: to achieve a certain goal on each ABAC meeting 2012.

ABAC New Zealand: Understand intent is stimulating technology dissemination. In the 21st century, technology is the heart of commercialization. Should be clear of what is in and what is out before approaching SOM level as some elements may not be appropriate for APEC Policy Partnership level. TTP is

not the same as the PPFS, which is a human level initiative.

Also recommended to change the name 'TTP', as it's too close to 'TPP'.

ABAC USA: Much work has been done at APEC level; should ensure this is incorporated. Need connection to APEC if it's to be called an APEC Policy Partnership. Need to take the learnings from the earlier PPFS discussion today.

ABAC Hong Kong, China: The funding is like that for the PPFS; about which there was fierce discussions at SOM I. APEC is firm about not throwing money at long-term projects (since they require a secretariat).

APEC Secretariat confirmed that APEC does not have a channel for this. Also, that proposal for sponsorship must be proposed by an APEC member.

ABAC Chinese Taipei: Two issues killing innovation worldwide: proliferation of trivial ppatent issues and threshold of granting patents not revised for decades. No consensus among economies to review this. So, in technology transfer, should raise this in APEC meetings. All current IPR should be respected, but should be a move to improve this process.

ABAC Hong Kong, China: Updated on the EGS discussion at SOM I, and the list to be included in tariff reductions of up to 5%. The WTO has 143 items proposed for tariff reduction. World Bank has 41. APEC likely to have a number between them.

ABAC Japan: SOM I called for larger list, especially in the very sensitive transport sector.

***What was agreed/decided?***

The meeting agreed and endorsed the proposed work plan for Technology Transfer and Cutting-Edge Technology Investment. SDWG priority initiatives on Technology Transfer and Cutting-Edge Technology Investment f for 2012 would be:

a) Identify and recommend policies that can encourage technology transfer and investment in cutting edge technology;

b) Promote the facilitation of technology transfer from the public to private sectors, large corporations to SMMES, and between economies;

c) Establish a new TTP/PPTT that would bring together public and private sector in stimulating technology transfer.

The meeting encourages APEC members to participate in the research and analytical work on improving the national and international climate of technology transfer in APEC, intellectual property protection and other issues.

On ABAC Russia's proposal on Technology Transfer Partnership proposal. The members agreed that this was an important issue and they felt that the details for a mechanism to facilitate technology dissemination still warrant further discussion. Concerns expressed include:

a) The proposed creation of another "partnership"; the creation of a food security partnership (PPFS) is certainly a ABAC success but we have to be mindful that the PPFS is still being setup;

b) Technology issues are distinct from food issues as there is a strong element of competition. This has to be taken into consideration in the Technology Transfers proposal.

As a next step, ABAC Russia will incorporate the feedback received and work with interested economies, such as ABAC Japan, on the Technology Transfer proposal. This will be an on-going discussion in 2012.

Document: SDWG 32-019
Draft: **FIRST**
Source: ABAC New Zealand
Date: 8 May 2012
Meeting: Kuala Lumpur, Malaysia

# Meeting Document Summary Sheet Template

**Document Title:**

Reducing the Impact of Post Harvest Losses : the role and importance of refrigeration

**Purpose:**
For consideration

**Issue:**
The issue of post harvest loss is significant as it undermines food security in the APEC region.

**Background:**
This presentation was first delivered by Tony Nowell at SOM II in Big Sky Montana in May last year in the context of an APEC Public/Private Dialogue on Food Security Issues.

Given that the inaugural Policy Partnership on Food Security is taking place in Kazan less than a week after the SDWG meeting in Kuala Lumpur, and the issue of "Reduction of food losses and costs through the food supply chain and infrastructure improvement" is on the draft PPFS agenda, it is useful for ABAC members to recall the importance of this issue.

The presentation discusses issues related to trade and border impediments and infrastructure and technology impediments to the reduction of post harvest loss, and the role of refrigeration in providing available and safe nutrition. The presentation highlights the need for extensive high-performance cold chains. It concludes by presenting recommendations from a group of independent experts, the International Institute of Refrigeration and some practical business recommendations on how APEC food safety mechanisms, working with the private sector, can better address this issue.

**Proposal /Recommendations:**
For noting.

**Decision Points:**
For noting.

# Reducing the Impact of Post Harvest Losses

## The Role and Importance of Refrigeration


**Tony Nowell – ABAC New Zealand**
**Chairman – Regional Economic Integration Working Group**
**APEC Business Advisory Council**


***APEC Public Sector / Private Sector Dialogue on Regional Food Security***

***Big Sky, Montana – May 2011***

**Advancing** Free Trade for Asia-Pacific **Prosperity**

21 Economies for 21st Century Prosperity
ABAC

APEC
Asia-Pacific Economic Cooperation

# Agenda

- Trade and Border Impediments
- Infrastructure and Technology Impediments
- The Role of Refrigeration in Available Nutrition
- The Role of Refrigeration in Safe Nutrition
- The Need for Extensive High-performance Cold Chains
- Zespri – an international cold chain case study
- Intn'l Institute of Refrigeration Recommendations
- ABAC Recommendations

# Trade and Border Impediments

- Changes to pest inspection regimes at the import country border
  - Can cause delays in shipments and fruit quality deterioration
  - Often leads to subsequent fruit disposal
- New requirements for residue tests without consultation
  - Need to work with exporters to be better prepared if this were to occur
  - Need to accredit exporters systems to meet the requirements of importing countries
  - Can cause delays in shipments and fruit quality deterioration
  - Often leads to subsequent fruit disposal
- Deliberate shipping delays
  - Result of the global economic downturn and subsequent slow steaming (to save costs)
  - Potential a significant issue for short storage life products
  - Minimizes retail shelf life and grower returns
  - Often leads to excessive fruit disposal
- Market access issues related to use of fumigants that must be applied at >10° C
  - Negatively impacts fruit storage life
  - Successful trial of phosphine as a replacement for Methyl Bromide (MB)
  - No negative impact on ozone layer; applicable at cold storage temperatures
  - Ensures that fruit quality is not unnecessarily negatively impacted

# Infrastructure and Technology Impediments

- Poor cold chain infrastructure in many warm climates
  - limits the amount of 'saleable' product received
  - Can cause losses as high as 3-4%
  - Under-developed countries develop workable solutions
  - Requires daily purchase and sales in heavily populated areas
  - Distance from cold store to consumer must be kept short
- Emphasis required on a more holistic solution to reduce post-harvest losses
  - Finding a sustainable way to increase food availability
  - Finding a sustainable way to increase food safety
- Refrigeration has a vital role to play
  - Currently many preserving technologies applied to perishable foods
  - Refrigeration the only processing technology that combines:
    - ability to extend product shelf life
    - ability to maintain the initial physical, chemical, nutritional and sensory properties
  - Greater use of refrigeration technology would ensure better availability of nutrition
  - Both a **quantity** and **quality opportunity**

# The Role of Refrigeration in Available Nutrition

- From a **quantity** point of view
  - In theory there is sufficient agricultural production to meet the needs of the entire global population
  - 14% of the global population suffers from undernourishment
  - Post-harvest losses cause this situation to a large extent
- Production regions located increasingly further from consumers
  - Trend will increase as cities expand
  - Urbanisation from 17% in 1950 to 50% in 2008
  - Expected to reach 70% by 2050
- Introduction of novel supply chain networks can reduce impact
  - Regional cold storage and transport infrastructure to support local trade
  - National port and transport cold chain structures to support development of international trade
- Seasonal characteristics and fluctuations are a fact of agricultural production
  - Reserves and safe storage are of great importance in food security
  - Refrigerated storage currently under-utilized
  - Refrigeration a key factor in smoothing available nutrition flows

# The Role of Refrigeration in Safe Nutrition

- From a **quality** point of view
  - Refrigeration plays a vital role in food safety and spoilage reduction
  - Foodstuffs of animal and plant origin are highly perishable and can host pathogens
  - Significant causes of food borne diseases and spoilage are bacterial contamination, survival and growth. Refrigeration substantially reduces bacterial growth in foods.
- Refrigeration is even more vital in hot countries
  - Bacterial growth takes place faster because of high temperatures
  - Reduces high rate of chemical and physiological reactions that reduce quality
- Food borne pathogens can be deadly
  - An estimated 1777 people die every year in the USA from known pathogens, out of a total of 5000 deaths from all food borne diseases
  - Causal analysis of these food borne illnesses suggests that over 90% are at least partly associated with poor temperature control
  - According to a 2008 WHO report, refrigeration and improved hygiene in the USA has reduced stomach cancer by 89% in men and 92% in women since 1930

# The Need for Extensive High-performance Cold Chains

Asia-Pacific Economic Cooperation

- Greater amounts of refrigeration equipment and a high-performance cold chain equate with lower post-harvest losses
  - For fruit and vegetables, the loss rate varies by a factor of up to 3 or 4, depending on product type and country
  - USA has losses of about 12% and a refrigerated storage volume of 300 m3 per 1000 inhabitants
  - India has losses of about 40% and in spite of a two-fold increase in volume over the last decade, still has a refrigerated storage volume of only 75 m3 per 1000 inhabitants
- Approx. 360 million tonnes of perishable foods are lost each year through insufficient use of refrigeration
  - If developing countries could acquire the same level of refrigerated equipment as that in industrialized countries, over 200 million tonnes of perishable foods would be preserved
- Strengthening of the cold chain is vital for food safety and prevention of malnutrition
- The cost of refrigeration, including acquisition and the operation, can often be offset by the revenue from sales that would otherwise have been lost
- Strengthening of the cold chain must take into account country-specific factors
  - Implementation of rapid cooling of products of animal or plant origin post production
  - Refrigeration plants close to production sites and specifically designed to handle cooling loads
  - An essential component is an unbroken cold chain, particularly at the interfaces between various modes of transport and/or storage sites
  - Raised awareness of the risks inherent in cold chain non-compliance
  - Training in good cold chain and refrigeration practice is vital

21 Economies for 21st Century Prosperity

ABAC

# The Need for Extensive, High-performance Cold Chains

Asia-Pacific Economic Cooperation

- Global food production comprises roughly one third of perishable products requiring preservation
- In 2003, of a total global food production of 5500 million tonnes, of which 1800 million tonnes required refrigeration, only 400 million tonnes were preserved thanks to refrigeration (chilled or frozen)

| | World population | Developed countries* | Developing countries** |
|---|---|---|---|
| Population in 2009 (billion inhabitants)[1] | 6.83 | 1.23 | 5.60 |
| Refrigerated storage capacity ($m^3$/1000 inhabitants)[11,12] | 52 | 200 | 19 |
| Number of domestic refrigerators (/1000 inhabitants)[11,13,14] | 172 | 627 | 70 |
| Food losses*** (all products) (%)[9,15,16] | 25% | 10% | 28% |
| Losses of fruit & vegetables*** (%)[9,15-20] | 35% | 15% | 40% |
| Loss of perishable foods through a lack of refrigeration (%)[15,16] | 20% | 9% | 23% |

* More-developed regions[1] ** Less-developed regions[1]

*** The loss rate comprises post-harvest losses, i.e. during processing, storage, transport and retail sale. It does not include final losses at consumer level for several reasons:
– these final losses are particularly difficult to evaluate, although a US study[21] has demonstrated that such losses are about 14% in the USA;
– the value of final losses depends far less than post-harvest losses on the refrigerated equipment available in industrialized countries that are well-equipped: waste accounts for a major amount of losses; Kader[17] considers that final losses are slightly higher in developed than in developing countries.

- AT Kearney has estimated that the strong growth of the Chinese economy would need to be supported by approx. $100 billion of cold chain infrastructure development

21 Economies for 21st Century Prosperity

ABAC


Zespri
Kiwifruit

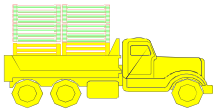

France
Italy
USA - California
Japan
South
Korea
Chile
New Zealand
& Australia

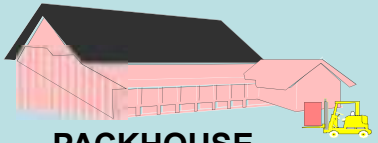

SUNBELT SPIRIT

# Refrigeration Required through the Zespri Supply Chain

ORCHARD

Critical Control Points

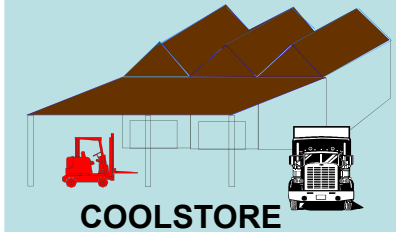




PACKHOUSE

Critical Control Point

Critical Control Point



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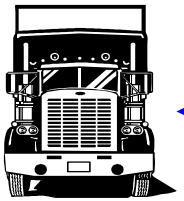
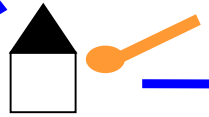


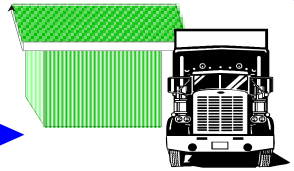
TRANSPORT

Critical Control Point

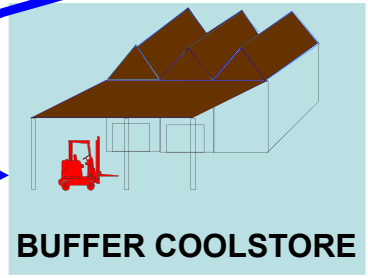


WHARF GATE

Critical Control Point



CHECKPOINT

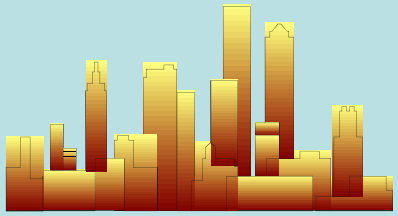


BUFFER COOLSTORE

MARSHALLING

STEVEDORING

CONSUMER



OVERSEAS MARKETS

Critical Control Point

SEA FREIGHT

Critical Control Point

# Storage quality is the single biggest waste cause in the NZ kiwifruit industry

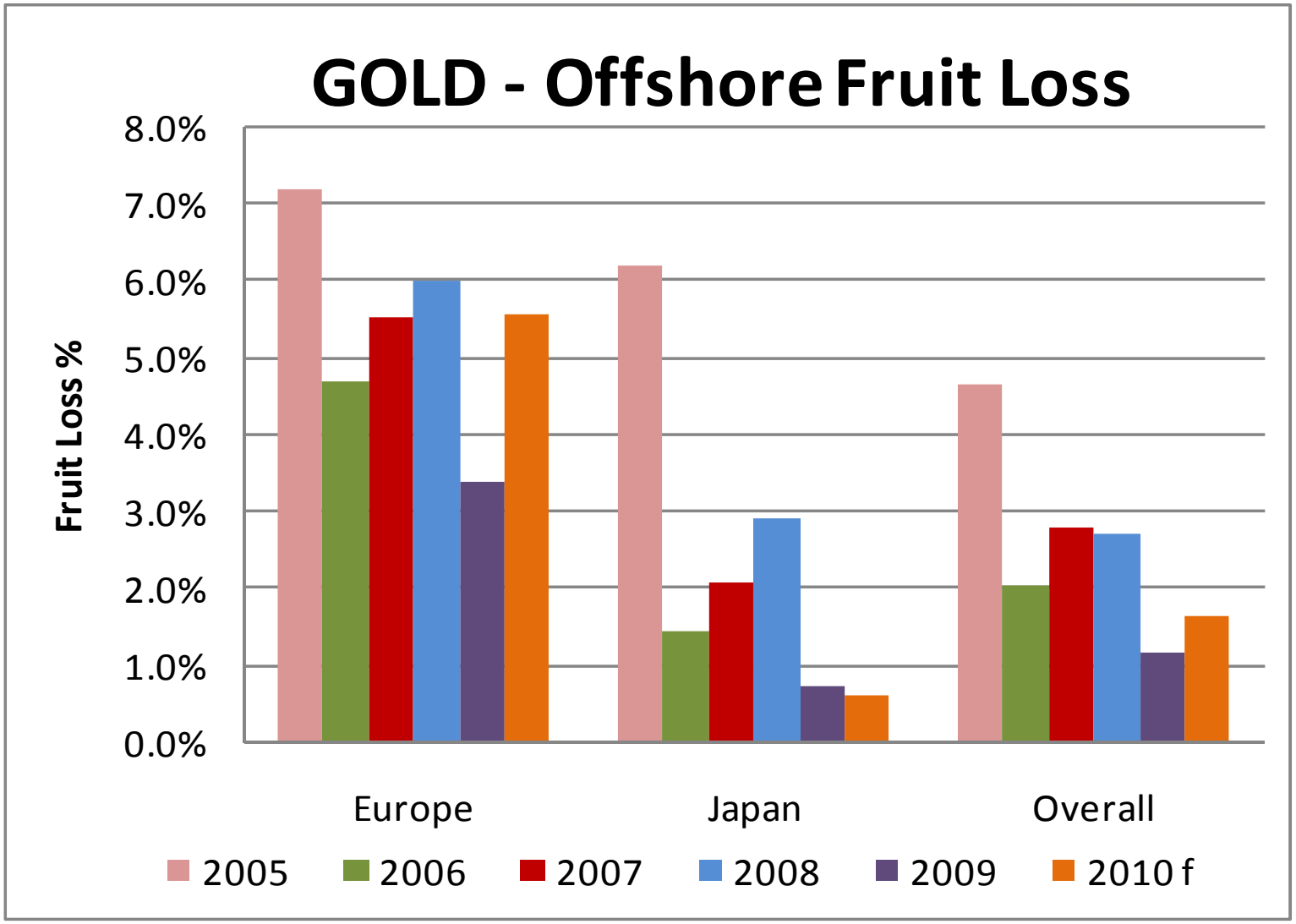
| GREEN | 2007 | 2008 | 2009 | 2010f |
|---|---|---|---|---|
| Offshore fruit loss | 21.9m | 25.7m | 23.4m | 32.0m |
| Offshore claims | 7.2m | 7.3m | 12.5m | 9.3m |
| Offshore discounts | 2.0m | 1.9m | 1.4m | 3.1m |
| Total offshore costs | 31.1m | 34.9m | 37.3m | 44.4m |
| Onshore fruit loss | 29.4m | 35.7m | 26.8m | 23.5m |
| | 60.5m | 70.6m | 64.1m | 67.9m |

| GOLD | 2007 | 2008 | 2009 | 2010f |
|---|---|---|---|---|
| Offshore fruit loss | 8.6m | 10.7m | 4.3m | 5.8m |
| Offshore claims | 3.2m | 3.4m | 3.0m | 2.8m |
| Offshore discounts | - | - | - | - |
| Total offshore costs | 11.8m | 14.1m | 7.3m | 8.6m |
| Onshore fruit loss | 13.4m | 10.1m | 10.5m | 6.6m |
| | 25.2m | 24.2m | 17.8m | 14.2m |

Volume (retail trays equivalents)

| | GREEN | GOLD |
|---|---|---|
| 2007 | 74,623,717 | 21,050,277 |
| 2008 | 80,085,842 | 23,290,830 |
| 2009 | 78,523,376 | 22,670,867 |
| 2010 | 76,091,260 | 21,447,254 |

# Strong cold chain capability development positively impacts post-harvest loss



# International Institute of Refrigeration Recommendations

- Refrigeration can make a significant contribution to addressing the issue of undernourishment especially in the least-developed countries
- The setting up of cold chains for perishable foodstuffs that are as extensive and reliable as those in industrialized countries would enable developing countries to raise food supply by approx. 15%
- The vital links in an effective cold chain are cooling and storage at production sites, refrigerated transport and implementation of refrigeration in retail outlets. The following conditions govern the setting up of cold chains where they are currently lacking:
  - awareness on the part of decision-makers of the benefits of high-performance cold chains;
  - setting up of local structures involving all the ministries, refrigeration stakeholders and experts concerned in order to define action plans and priorities;
  - transfer of high-performance, environmentally friendly and cost-effective technology to developing countries in which such equipment is not yet available;
  - training of local engineers, technicians and users in order to set up, operate and efficiently maintain refrigeration plants forming effective links in cold chains.

# Improving Refrigeration
# An ABAC Recommendation

- Build upon the excellent work of the APEC Food Safety Co-operation Forum with a specific public / private refrigeration initiative
- Assist individual economies to assess refrigeration deficits and challenges
- Develop multi-stakeholder initiatives to address refrigeration gaps
- Use the PTIN mechanism to develop training and capacity building

# Reducing the Impact of Post Harvest Losses

## The Role and Importance of Refrigeration

*Thank You*

***APEC Public Sector / Private Sector Dialogue on Regional Food Security***

***Big Sky, Montana – May 2011***



Asia-Pacific Economic Cooperation

**Advancing** Free Trade for Asia-Pacific **Prosperity**

Document: SDWG 32-017
Draft: **SECOND**
Date: 7 May 2012
Source: SDWG Chair
Meeting: Kuala Lumpur, Malaysia

**Draft Letter to APEC Food Security Ministers**

**The Honorable Yelena Skrynnik**
Chair, APEC Ministerial Meeting on Food Security &
Minister of Agriculture
Russian Federation

Dear Minister Skrynnik:

ABAC is pleased that APEC has identified food security as a major priority for APEC 2012, and that the second Ministerial Meeting on Food Security will be convened this May.

Over the past decades, ABAC and APEC have made great efforts in promoting food security. In 1999, ABAC proposed a unified APEC Food System that was endorsed by APEC Leaders, but implementation was desultory. In 2009, ABAC published the document "Strategic Framework for Food Security in APEC" which explored key issues affecting food security. In the 2010 Niigata Declaration, Ministers declared that APEC economies would collectively pursue the shared goals of (i) sustainable development of the agricultural sector, and (ii) facilitation of investment, trade and markets, and Ministers endorsed an APEC Action Plan on Food Security which identified 62 specific activities to be implemented by 14 APEC economies. Since implementation is mainly carried out by academies of agricultural sciences or other research institutes with little involvement from business circles or agri- food enterprises, it is sometimes hard to realize effective cooperation for the proposals.

Therefore, ABAC applauds the creation of the APEC Policy Partnership on Food Security and asks Leaders to direct their governments to use this Partnership with the private sector as the focal point for developing and implementing a food security policy for the APEC region.

ABAC recognizes that there are some new challenges which have made the food situation ever more complex. Faced with these new challenges, we propose to take concrete actions with more involvement from the private sector, firstly aiming at expanding global food supply capacity, and secondly reducing food price fluctuations in the global market.

We particularly request your kind attention on the following outstanding issues and relevant actions:

1. Facilitating effective dissemination of food-related technologies

We believe that technology is key to increasing food output and ensuring a stable food supply. In past years, technology played an unquestionable role in increasing food output and ensuring a stable food supply. However, the role of technology in enhancing grain yield in developed economies has weakened, while for developing economies technology still has great potential to boost yield.

Therefore, we recommend that APEC consider the possibility of establishing technology dissemination centers in APEC economies in the agri-food sector to coordinate innovative activities, provide assistance with technology dissemination, assess risks and possible consequences from using innovative technology, and develop demonstration projects for food-related technology dissemination.

2. Increasing collaboration and investment in the agri-food sector

We are concerned that the longstanding under-investment in agriculture across the globe may have resulted in low agricultural productivity and stagnation in many economies, especially in developing economies. To address the task of enlarging the food supply in APEC economies, it is necessary to significantly increase public and private investments.

Therefore, we propose that APEC should, through the PPFS, improve the business environment in APEC economies with the aim of facilitating investment in the agri-food sector while identifying existing barriers to investment cooperation. We recommend that APEC consider working out a regional strategic investment plan and elaborating measures to attract targeted investments into the agri-food sector.

3. Developing food markets infrastructure

We agree that the development of food market infrastructure and improvement of their logistics plays an important role in the overall development and mutual integration of markets, creating the basis for their more efficient functioning and further expansion.

Logistical processes, such as storage and transportation, are always accompanied by losses. Thus, the development of market infrastructure would significantly reduce losses along the whole food supply chain (production, storage, transportation and distribution).

Therefore, we propose that APEC consider developing a unified methodology for assessing post-harvest losses in the APEC member economies' food sector to acquire comparable data in order to analyze this problem and elaborate ways to resolve it, including by concentrating on the efficient management of supply chains. We also suggest APEC design a framework for the development of food market infrastructure to minimize food losses during transportation, thus contributing to a greater affordability of food to vulnerable populations.

4. Improving global food market transparency

Food price volatility was a main agenda item during the presidency of France at the G20 Summit. G20 governments have created the Agricultural Market Information System (AMIS). According to the Food Security Action Plan adopted in Niigata in 2010, Japan is developing the Asia-Pacific Food Security Information Platform (APIP).

Therefore, we suggest that APEC consider areas of cooperation between AMIS and APIP, as well as the possibility of having APEC economies that are not G20 or AMIS members participate in the two information systems.

5. Monitoring the impact of financial instruments

Speculation makes markets more active, however it also can have a negative impact on the final price for consumers. Therefore, it is necessary to strengthen monitoring of the impact of financial instruments.

ABAC recommends that APEC monitor the G20 "Action Plan on Food Price Volatility and Agriculture" and consider adopting coordinating and implementing measures.

We are ready to discuss the above-mentioned issues and proposals with you at the upcoming APEC Ministerial Meeting on Food Security in Kazan this May.

Sincerely yours,

**Ziyavudin G. Magomedov**
ABAC Chair 2012

**Frank Gaoning Ning**
Chair, ABAC Sustainable Development Working Group

Document: SDWG 32-018
Draft: **SECOND**
Date: 8 May 2012
Source: SDWG Chair
Meeting: Kuala Lumpur, Malaysia

**Draft Letter to APEC Energy Ministers**

Dear XXX,

We would like to commend APEC Energy Ministers for progress made in enhancing regional energy security. Specifically, we applaud APEC's recent efforts to address market distorting policies such as inefficient fossil fuel subsidies, and tariff and non-tariff barriers on environmental goods and services (EGS).

Fossil fuel subsidy reform is an important factor in addressing dependencies on fossil fuels and in encouraging private sector investment in clean and renewable energy sources. The development of a voluntary reporting approach within APEC is a positive first step and we urge Ministers to establish a timetable for phasing out inefficient fossil fuel subsidies that encourage wasteful consumption.

On the issue of the EGS, we encourage officials considering goods and services that "directly and positively contribute to green growth and sustainable development objectives" to cast their nets as wide as possible.

In 2011, ABAC made several recommendations and we would like to bring your attention to some outstanding issues:

First, energy security is an urgent regional concern and we believe that high-level regional cooperation and a regular exchange of information is essential to resolve cross-border energy supply and demand concerns in a timely manner. To this end, we recommend that APEC commit to an annual Energy Ministers meeting with a robust private sector component and the development of an integrated, strategic and long-term APEC Energy Security Framework. Collaboration between the public and private sector is crucial to successfully address the region's energy security challenges.

Second, ABAC supports a multi-pronged approach to energy security including the expansion of energy conservation efforts, the promotion of renewable and clean energy sources, increase use of natural gas, and an increase in energy productivity.

To promote conservation and energy productivity, APEC should expand the exchange of best practices, standards and technologies for energy efficiency; reduce barriers to energy investment and trade; invest in new transportation infrastructure and technology to maximize lower-carbon natural gas; and create frameworks which encourage power generation and industrial plants to phase out inefficient systems.

To support energy diversification, APEC should focus greater attention on cooperative mechanisms to facilitate the trade and development of renewable energy sources. Addressing market distorting policies is an important step in correcting investor myopia. ABAC believes that more attention should be directed at the creation of regulatory, investment and legal environments to support the regional trade and development of both the transmission and distribution of clean and renewable energy through integrated national power grids.

We are ready to discuss the above issues with you at the upcoming APEC Energy Ministers' Meeting in St. Petersburg this June and to provide officials feedback on ongoing energy initiatives.

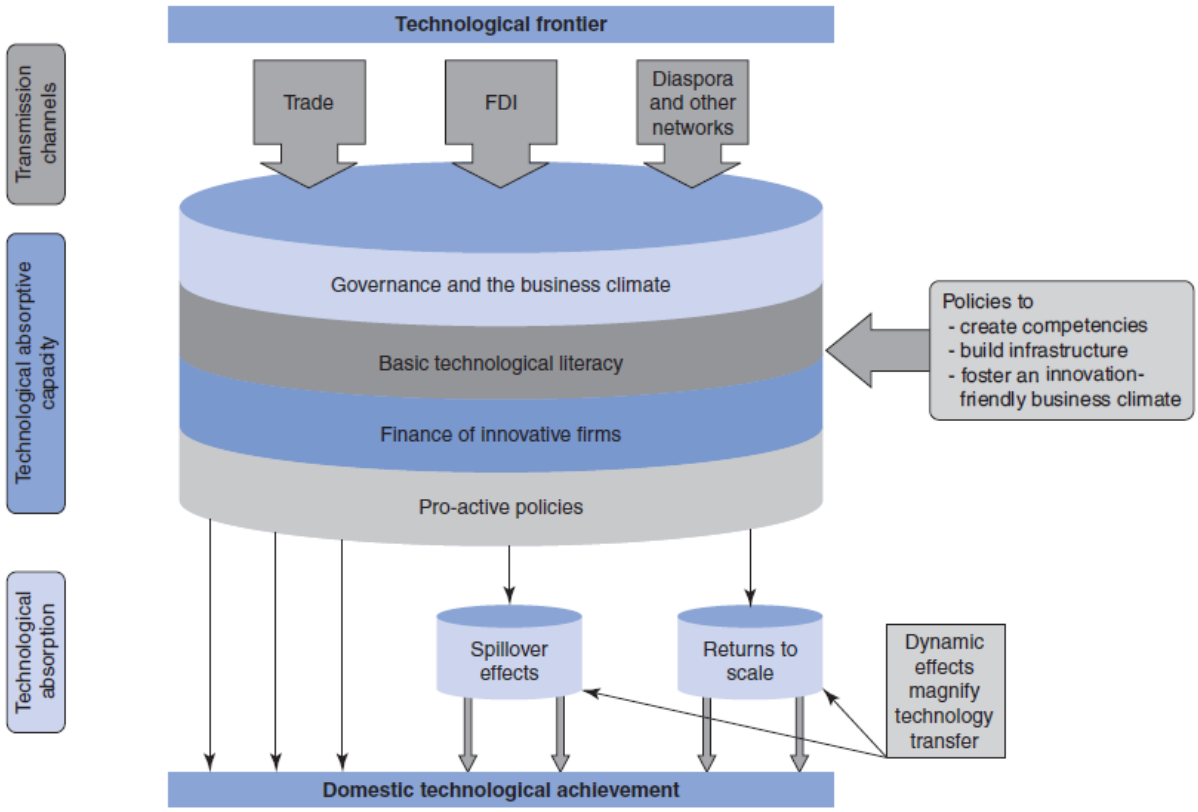
Yours sincerely,

**Ziyavudin Magomedov**
ABAC Chair 2012

Technology Transfer Talking Points

ABAC USA feels that the core issue ABAC should try to resolve is the technology gap between APEC economies and believe that APEC can be effectively leveraged to make progress in promoting the diffusion of technology throughout the region in a manner that is consistent with its mission and purpose.

**Figure 3.1 Domestic absorptive capacity both conditions and attracts external flows**




*Source:* World Bank.

Diffusion of technology has been the focus of numerous studies and reports in recent years. A number of factors have been identified as playing a role in driving or prohibiting technology diffusion from the "technology frontier" to the point of "domestic technological achievement."

A 2008 World Bank report on technology diffusion identified three key transmission channels for technology: trade, foreign direct investment and diaspora and networks. It further identified factors that affect the technological absorptive capacity of an economy: Governance and the business climate, basic technological literacy, finance of innovative firms and proactive policies.

Transmission Channels

| Channel | How APEC/ABAC contribute |
|---|---|
| Trade | Trade liberalization and facilitation are key pillars of APEC and are core elements of ABAC's agenda |
| Foreign Direct Investment | APEC has made strong commitments to improve the investment environment and has an established work plan in the form of the Investment Facilitation Action Plan. ABAC is actively engaged with APEC's Investment Experts' Group |
| Diaspora and other networks | Though not a core objective, by its nature APEC has a network effect as a forum where government and business officials from the Asia-Pacific region gather to share information and ideas. |

Technological absorptive capacity

| Issue | APEC/ABAC Contribution |
|---|---|
| Governance and the business climate | Both APEC and ABAC have a strong work plan on "behind the border" and "ease of doing business" issues |
| Basic technological literacy | APEC work in this area is relatively limited |
| Finance of innovative firms | The APEC Finance Ministers' Process and ABAC's work related to finance have generated activities and recommendation relevant to this issue |
| Pro-active policies | APEC can serve as a forum for exchange of best practices in government promotion of technological development |

The US has some concerns about the PPTT proposal. Since the PPTT essentially focuses on arranging licensing agreements (which is a substitute for FDI), our concern is that the PPTT proposal calls for the creation of a Policy Partnership (no small task, as we all know well) that will address only a narrow element of the overall technology gap/diffusion issue. This would arguably be similar to creating the Policy Partnership on Post-Harvest Loss to address the food security issue in APEC.

In sum, ABAC USA would be interested in supporting a broader approach to addressing the technology gap among APEC economies that more effectively leveraged APEC's core agenda related to trade and investment as well as behind the border issues that promote the absorption of technology. We generally don't have a problem with the "Policy Partnership" approach, although we do think that trying to launch it this year would be difficult, particularly given the shortened APEC calendar.